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| APPLICATION NO.         | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------|-------------|----------------------|---------------------|------------------|
| 10/091,119              | 03/06/2002  | John A. Lawton       | P 283291 D1149      | 5159             |
| 909                     | 7590        | 05/12/2004           | EXAMINER            |                  |
| PILLSBURY WINTHROP, LLP |             |                      | HAMILTON, CYNTHIA   |                  |
| P.O. BOX 10500          |             |                      | ART UNIT            |                  |
| MCLEAN, VA 22102        |             |                      | PAPER NUMBER        |                  |
|                         |             |                      | 1752                |                  |
| DATE MAILED: 05/12/2004 |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/091,119             | LAWTON, JOHN A.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Cynthia Hamilton       | 1752                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 3/22/04, 12-18-03, 12/05/03.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9,16-19,21,24 and 32-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4,6-9,16-19,21 and 24 is/are allowed.
- 6) ☒ Claim(s) 32-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 32 and 35-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants have shown insufficient support for the genus set forth in claims 32 and 35-44 with respect to the broad group of "polyoxypropylene glycols and polyoxypropylene triols" not further limited as set forth on page 13, lines 17-19, wherein "polyoxypropylene glycols and triols of molecular weights from about 200 to about 10,000" are disclosed. Applicants have not shown where the broader of "polyoxypropylene glycols and polyoxypropylene triols" is disclosed. The failure to add the limitation of molecular weight puts this claim language outside the genus disclosed originally by applicants.

4. Claims 35-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants have shown insufficient support for the genus set forth in claims 35-44. Claim 35 is the independent claim in this group. Claim 35 is as

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follows:

- 35. (New) A radiation-curable composition comprising:**
- (i) a cyclohexene oxide component;**
  - (ii) alkoxylated trimethylolpropane triacrylate;**
  - (iii) a free radical polymerizable component having at least 5 acrylate groups; and**
  - (v) a hydroxy-functional component selected from the group consisting of polyoxypropylene glycols and polyoxypropylene triols.**

Applicants point to "the bottom of page 5, the first full paragraph on page 8, the last full paragraph on page 11, and the second full paragraph on page 13" as apparent support for new claim 35. There is no word for word disclosure of this four component mixture in any of these locations. The examiner sets forth the disclosure cited as support for the newly added claim 35 in the following:

- a. The bottom of page 5 referenced is assumed to be as follows:

**It is preferred that the epoxy compounds comprise at least one cyclohexeneoxide structure, more preferably at least 2 cyclohexeneoxide structures.**

This paragraph is part of a description of the (A) Cationically polymerizable component in the instant invention that is described on pages 3 to 7 of the original disclosure.

- b. The first full paragraph on page 8 is as follows:

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Monofunctional components that may be used as the non-aromatic compatible component include, for instance alkoxyated isodecyl acrylate, alkoxyated isobornyl acrylate, and alkoxyated lauryl acrylate. It is preferred, however, to use polyfunctional components. Examples of suitable non-aromatic compatible polyfunctional components include, for instance, tripropyleneglycol diacrylate, polypropyleneglycol dimethacrylate, alkoxyated neopentylglycol diacrylate, alkoxyated alkanediol diacrylates (e.g. ethoxyated or propoxyated hexanediol diacrylate), and alkoxyated trimethylolpropane triacrylate. Also oligomeric components may be used, such as, for instance, polytetrahydrofuran poly(meth)acrylates, poly(oxyethylene-oxypropylene) random or block copolymer poly(meth)acrylates, and poly(oxyethylene-oxybutylene) random or block copolymer poly(meth)acrylates. The number average molecular weight  $M_n$  of the oligomeric components is preferably between 250-5000 g/mol, more preferably between 250-2000 g/mol, and most preferably between 250-1250 g/mol.

This passage is referencing the "(b1): Non-aromatic components comprising at least two ether groups" found in line 31 on page 7. (b1) is a choice for the B component that is chosen to be "substantially compatible" with the (A) cationically polymerizable component.

c. The last full paragraph on page 11 is as follows:

It is preferred to include a free radical polymerizable component having a functionality greater than 2 as the additional free radical polymerizable component. These can be, for example, tri, tetra, penta, or hexafunctional monomeric or oligomeric aliphatic (meth)acrylates.

This is referencing "C. Additional free radical polymerizing component" of line 9 on page 11. C is the *optional* additional free radical polymerizable component described in lines 10-15 on page 11.

d. The second full paragraph on page 13 assuming the first line of page 13 starts a new paragraph is as follows:

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Representative examples of useful monomeric polyhydroxy organic materials include alkylene and arylalkylene glycols and polyols, such as 1,2,4-butanetriol, 1,2,6-hexanetriol, 1,2,3-heptanetriol, 2,6-dimethyl-1,2,6-hexanetriol, (2R,3R)-(-)-2-benzyloxy-1,3,4-butanetriol, 1,2,3-hexanetriol, 1,2,3-butanetriol, 3-methyl-1,3,5-pentanetriol, 1,2,3-cyclohexanetriol, 1,3,5-cyclohexanetriol, 3,7,11,15-tetramethyl-1,2,3-hexadecanetriol, 2-hydroxymethyltetrahydropyran-3,4,5-triol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, 1,3-cyclopentanediol, trans-1,2-cyclooctanediol, 1,16-hexadecanediol, 3,6-dithia-1,8-octanediol, 2-butyne-1,4-diol, 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1-phenyl-1,2-ethanediol, 1,2-cyclohexanediol, 1,5-decalindiol, 2,5-dimethyl-3-hexyne-2,5-diol, 2,7-dimethyl-3,5-octadiyne-2,7-diol, 2,3-butanediol, 1,4-cyclohexanedimethanol, and combinations thereof.

The examiner notes that this paragraph does not seem to support any of instant claim 35.

However, it is possible applicants considered the first three lines on page 13 as part of a bridging paragraph. If so, then the second full paragraph on page 13 would have been as follows:

Representative examples of useful oligomeric and polymeric hydroxyl-containing materials include polyoxyethylene and polyoxypropylene glycols and triols of molecular weights from about 200 to about 10,000; polytetramethylene glycols of varying molecular weight; poly(oxyethylene-oxybutylene) random or block copolymers; copolymers containing pendant hydroxy groups formed by hydrolysis or partial hydrolysis of vinyl acetate copolymers, polyvinylacetal resins containing pendant hydroxyl groups; hydroxy-terminated polyesters and hydroxy-terminated polylactones; hydroxy-functionalized polyalkadienes, such as polybutadiene; aliphatic polycarbonate polyols, such as an aliphatic polycarbonate diol; and hydroxy-terminated polyethers, and combinations thereof.

This paragraph ending at line 25 on page 13 appears to be the one addressed in view of polyoxyethylene and polyoxypropylene glycols and triols being disclosed. It is describing some choices for the D. Hydroxy-functional compounds that are not free radical polymerizable described starting in line 18 on page 12 of the original disclosure and ending on line 9 on page 14. This paragraph does not set forth preferred examples of D that is done in the paragraph bridging pages 13-14.

The examiner notes for the record there is no species set forth in the examples given that reads on the instant compositions of claims 35-44. Applicants have not pointed out where the subgenus set forth in claims 35-44 is disclosed. All they have done is point at individual disclosures for each piece without explanation how the combination of claim 35 is supported by the original specification. There is no explanation why a composition not limited to clarity issues at all is fully covered by a disclosure that is directed to clarity improvements in composition. Thus, applicants have failed to show sufficient support for the added compositions of instant claims 35-44. There are no compositions wherein polyoxyethylene glycols or polyoxypropylene glycols or triols are used with alkoxylated trimethylolpropane triacrylate. There are no compositions wherein polyoxyethylene glycols or polyoxypropylene glycols or triols are used with free radical polymerizable components having at least 5 acrylate groups. There is no support found for the broad genus of polyoxyethylene glycols or polyoxypropylene glycols or triols on page 13. All support on page 13 is limited to same but limited to molecular weight range of about 200 to about 10,000 as well. So if support were found in for the other components the broad support for these without molecular weight limitation has not been cited. There is no explanation as to why such a combination out of the myriad of compounds listed would have been expected by a worker of ordinary skill in the art to have been encompassed. With respect to instant claims 35-41, and 43-44, there are no generic compositions in the original disclosure wherein limits are not set on the amount of clarity required of the composition at some point. Under certain circumstances, omission of a limitation can raise an issue regarding whether the inventor had possession of a broader, more generic invention. See, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 45 USPQ2d 1498 (Fed. Cir. 1998). Applicants have removed

any limit to clarify these claims. Applicant's Summary of the Invention discloses several embodiments all of them are limited in some manner to clarity measurements. In the paragraph bridging pages 2-3 applicants disclose that they are trying to form hybrid compositions that avoid the poor transparency and /or whitish appearance when mixing cationically polymerizable components with free radical components. There is insufficient direction in the original disclosure for a worker of ordinary skill in the art to assume that the genus set forth in claims 35-44 would in and of itself do so. The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species. A "representative number of species" means that the species which are adequately described are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus. On the other hand, there may be situations where one species adequately supports a genus. See, e.g., *In re Rasmussen*, 650 F.2d 1212, 1214, 211 USPQ 323, 326-27 (CCPA 1981). Applicants have not done this. Applicants have not shown why the specific components of Alkoxylated trimethylolpropane triacrylate and either polyoxypropylene glycols or polyoxypropylene triols were chosen from large laundry lists of examples and combined. Applicants have not chosen the preferred species of those given by the original disclosure for each component. Because of the large laundry lists and the failure to find a single species disclosed by the original specification which fits within that described in claims 35-44, the examiner holds that applicants have not carried their burden to show that the inventor(s), at the time the application was filed, had possession of the claimed invention found in newly presented claims 35-44.



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5. Claims 33-34 and 38-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation not fully supported by the original disclosure is 5-25 wt% relative to the total weight of the composition of said hydroxy-functional component. Applicants cite the first full paragraph on page 14 for support. It is as follows:

5 If present, the composition preferably comprises, relative to the total weight of the composition, at least 1 wt% of one or more non-free radical polymerizable hydroxy-functional compounds, more preferably at least 5 wt%, and most preferably at least 10 wt%. Furthermore, the composition preferably comprises, relative to the total weight of the composition, at most 60 wt% of one or more non-free radical polymerizable hydroxy-functional compounds, more preferably at most 40 wt%, and most preferably at most 25wt%.

What is supported is "one or more non-free radical polymerizable hydroxy-functional compounds" in this range. Since other hydroxy functional compounds are possibly part of this composition as indicated on page 10, lines 18-24, in the original specification then there is clear indication that such a limit to all hydroxy functional components is not the range on page 14. The disclosure on page 10 is as follows:

b(3) hydroxyfunctional free radical polymerizable ester components

Although generally less preferred for clarifying compositions, hydroxyfunctional free radical polymerizable ester components have also been found to be useful in certain embodiments. An example is, for instance, caprolactone acrylate. In one embodiment, the present compositions comprise 0-8wt% of caprolactone acrylate. In another embodiment, the present compositions comprise 0-3 wt% of caprolactone acrylate. In an even further embodiment, however, the present compositions are absent caprolactone acrylate.

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Thus, applicants have not shown with respect to instant claims 33-34 and 38-39 where the full scope of the limitation 5-25 wt% relative to the total weight of the composition of said hydroxy-functional component is found in the original disclosure.

6. Claims 36-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants have cited page 10, last full paragraph as support for the range limitations on alkoxyated trimethylolpropane triacrylate set forth in claims 36-37. What is set forth on page 10 is broad limitations for the amount of compatible free radical polymerizable component to be used in the originally disclosed compositions. The paragraph on page 10 is as follows:

**The present compositions preferably comprise, relative to the total weight of the composition, more than 2 wt%, even more preferably at least 3 wt%, and most preferably at least 5 wt% of compatible free radical polymerizable component. The present compositions preferably comprise, relative to the total weight of the composition, at most 60 wt%, more preferably at most 30 wt%, even more preferably at most 15 wt%, and most preferably at most 10 wt% of compatible free radical polymerizable component.**

There is no indication that these limits are set for the sub genus of alkoxyated trimethylolpropane triacrylate with respect to the combination of instant claims 35 and 36.

7. Claim 5 is objected to because of the following informalities: The use of 'component component' in line 2. The second occurrence needs to be cancelled. Appropriate correction is required.

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8. Claims 1-2, 4, 6-9, 16-19, 21 and 24 are allowed. Claim 5 would be allowable if the objection is removed.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

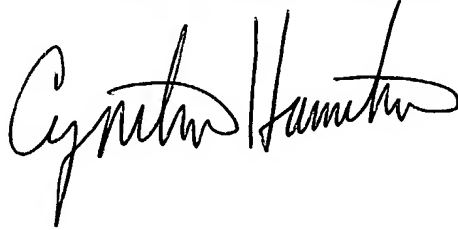
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-3331. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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*Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).*

A handwritten signature in black ink, appearing to read "Cynthia Hamilton". The signature is fluid and cursive, with the first and last names clearly distinguishable.

Cynthia Hamilton  
Primary Examiner  
Art Unit 1752

May 7, 2004

**CYNTHIA HAMILTON  
PRIMARY EXAMINER**